INTRODUCTION

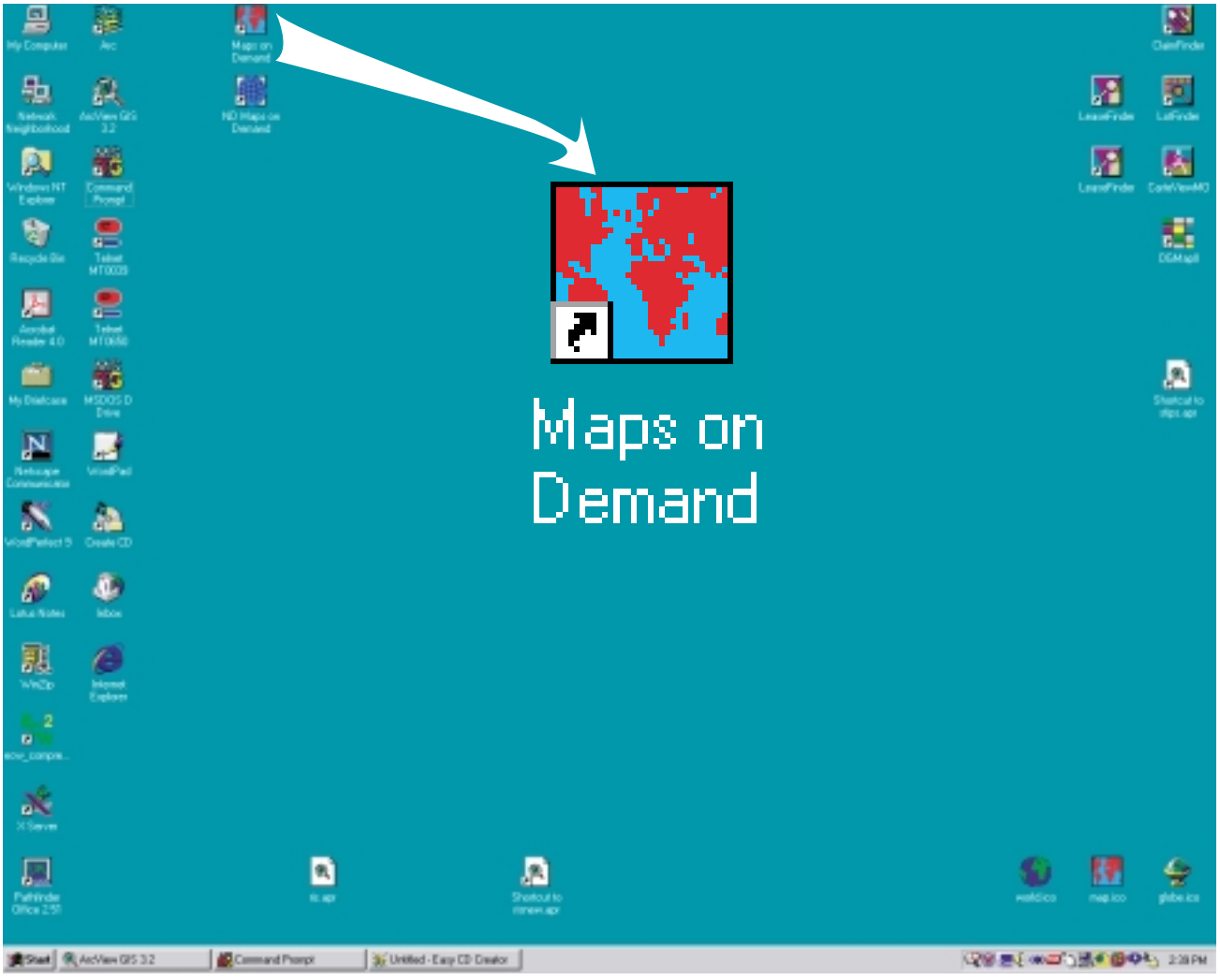
Maps on Demand is an Arcview application. It provides easy access to the digital base information for Montana/Dakotas. These datasets will be housed on local NT servers.

Support - User support questions can be directed to anyone within the State Office GIS Section extensions 5136 to 5146.

Requirements - Arcview must be installed on your NT.

Getting Started - Once installed on your NT, a "Maps on Demand" icon will exist. Just double click on the icon to start the application.

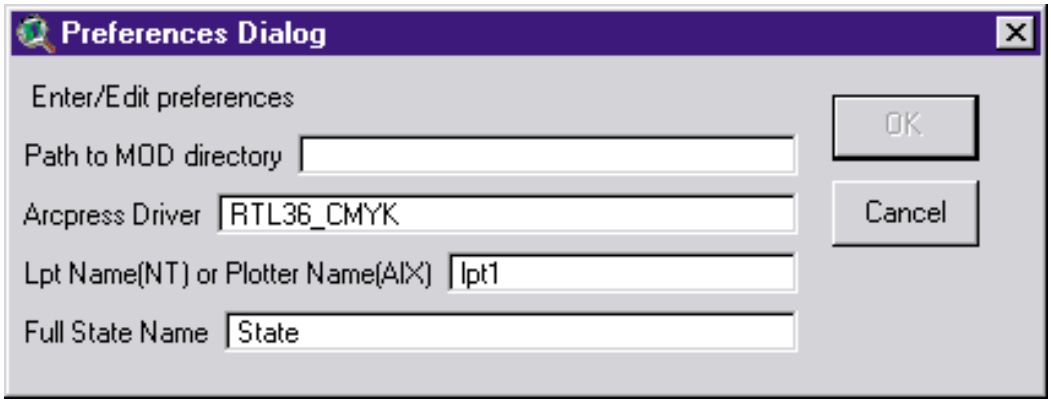
Maintenance - The software is updated as requests are made. These enhancements are available through nightly updates to all of the field office servers. For standalone computers (fire site - only), updates will be sent monthly. The data sets that are accessed are a "snap shot" from the MT/Dakota corporate data base. As of January 2002, a new snap shot of these data sets will be provided monthly (through the same mechanism as the software).



PREFERENCES FILE

The mod_preferences.txt file is a text file containing a list of the directory, name, type of data, and the path to the .avl (ArcView Legend File). This file is an essential element of the Maps on Demand application because it acts as a pointer to your data. The application populates data layers from the information that it reads from the mod_preferences.txt file. The file can be found in the directory defined by your system as the HOMEDRIVE and HOMEPATH variables. If you don't know what directory is your HOMEDRIVE and HOMEPATH, open a DOS command prompt window and type in: set | more

This command will show the drive that the HOMEDRIVE variable points to and the path that the HOMEPATH variable refers to. If you navigate to this directory area and you have accessed the Maps on Demand application in the past, you should see the file titled mod_preferences.txt. This file is created as you enter the application, with the default and required values.



The first time that you access Maps on Demand, the following dialog box will display:

Path to MOD directory - Enter the pathname to the Maps on Demand directory; i.e., M:\mapdem.

ArcPress Driver - leave RTL36_CMYK as the default.

Lpt Name or Plotter Name - Maintain the network server number as well as the plotter number; i.e., \\mt0046\mt0472.

Full State Name - denotes the State Office; i.e., Montana\Dakotas

Click the OK button.

After completing this initial process, you will have a mod_preferences.txt file within your home directory that contains the following information

M:\mapdem
RTL36_CMYK
\\mt0046\mt0472
Montana\Dakotas
Bnd
County
Office
Index24
Index100
Twn
Geoname

The additional entries that you did not enter such as Bnd, County, etc., are the themes that are required by Maps on Demand in order for all functions to work. The application knows to search for these coverages within the directory you specified (which displays on the first line of the file).

The examples shown in this section refer to Arc/Info coverages, shapefiles, Arc librarian files, image catalog files, and SDE (Spatial Database Engine) coverages. You have the option to insert additional themes/layers into the mod_preferences.txt file in order to have the application display the optional themes. The recommendation for editing the file is to open the file in Wordpad and make the necessary additions/changes. The format for this data entry is as follows:

> Source path of the file,theme name displayed in the table of contents (TOC), feature class or file type,file/coverage name,source path and filename of the ArcView legend file (.avl) associated with the coverage.

Source path of the file - the directory path structure of where the file is located.

Theme name - the name that appears in the ArcView table of contents when a view is displayed.

Feature class - the type of data (point, line, poly, regions.regionname, etc.). If the data is a shapefile, then the feature class is "shape".

File name - the actual name of the coverage or shapefile.

Source path and filename of the ArcView legend file - the full pathname and filename of the legend file. There are three options for the .avl file: None, Default, or the Pathname

> None means that there isn't an .avl file associated with the layer and Arcview will pick one.
> Default means that the .avl file is located in the default mapdem directory: mapdem\avl.
> The Pathname option shows the path and the .avl filename.

In order to add a shapefile coverage called own100.shp that is located within the Mapdem directory, enter the following line:

M:\mapdem\data\coverages,ownership,shape,own100,default

The application looks for a file called own100.shp in the M:\mapdem\data\coverages directory. When it is found, it names it "ownership" in the TOC and locates the .avl in the "default" M:\mapdem\avl\own100.avl file, loading it as the current legend for that theme.

To add an ArcInfo coverage called allinput, enter:

D:\w7\weeds\data\musselshell,weeds,regions.infnum,allinput,none

The application looks for the allinput coverage on the D: drive in the w7\weeds\data\ musselshell directory. The coverage feature class is regions.infnum and the theme is called weeds. There isn't a .avl file associated with the theme, so Arcview gives it a random color\legend.

To add an SDE coverage called grazing, enter:

sde:mt0039:esri_sde:mtsde,allotments,polygon,grazing.shp,C:\temp\allot.avl

The sde signifies that it is an sde coverage located on the mt0039 server using the esri_sde sde instance and the database is called mtsde. The grazing.shp tells the system that the coverage is titled grazing, and the shape field is called shp. The theme will be named allotments in the TOC using the allot.avl located in C:\temp.

To add a library layer, enter:

$mt75,weeds,regions.infnum,wpr,none

The $ signifies that the layer is in a library. The mt75 tells it the name of the library. The feature class is regions.infnum in the wpr layer. The layer will be named weeds in the TOC with Arcview selecting the legend color.

To add an image catalog layer, enter:

M:\mapdem\data\image\1:24 drgs,image,drg24.dbf,none

The application reads the drg24.dbf file to locate all of the DRGs. The theme name will be 1:24 drgs. Images do not need a legend file because the application handles the images appropriately, therefore the avl option is always none.

Note that there must be no spaces between commas (but it is okay to have spaces within the theme names). The themes may be put into any order within the file. The first theme in the file will be the bottommost in the TOC. The recommended order is to put in polygon data first, followed by lines, points and images. The required themes may also be moved to any position within the file in order to create a customized view display. When all of

the information has been entered and you are sure the information is properly formatted, save the text file. The following is an example of the completed text file:

M:\mapdem
RTL36_CMYK
\\mt0046\mt0472
Montana\Dakotas
Bnd
M:\mapdem\data\coverages,ownership,shape,own100,default
D:\w7\weeds\data\musselshell,weeds,regions.infnum,allinput,none
sde:mt0039:esri_sde:mtsde,allotments,polygon,grazing.shp,C:\temp\allot.avl
sde:mt0039:esri_sde:mtsde,pastures,polygon,past.shp,none
$mt75,weeds,regions.infnum,wpr,none
County
Office
Index24
Index100
Twn
Geoname
M:\mapdem\data\image,1:24 DRGs,image,drg24.dbf,none
D:\w7\mapdem2\data\image,DOQ,image,doq24.dbf,none

DATA ACCESSED

You may add any additional spatial data that you choose (assuming they are in similar format/projection/datum). However, the following data sets are necessary for the application to run as designed.

Shape File Name	Theme Name on TOC	Required Field(s)
bnd.shp	State Boundary	NAME - State Name (eg., Montana)
county.shp	County Boundaries	NAME - County Name (eg., Musselshell)
geoname.shp	USGS Place Names	CLASS - Classification of Place NAME - Name of Place
index100.shp	100k USGS Quad Boundaries	A100k_name - USGS Quad Name
index24.shp	24k USGS Quad Boundaries	Quad_name - USGS Quad Name
office.shp	BLM Offices	NAME - Name of the BLM Field Office
twn.shp	Townships	MTR - Meridian(2char), Twnshp(5char), Range(5char)

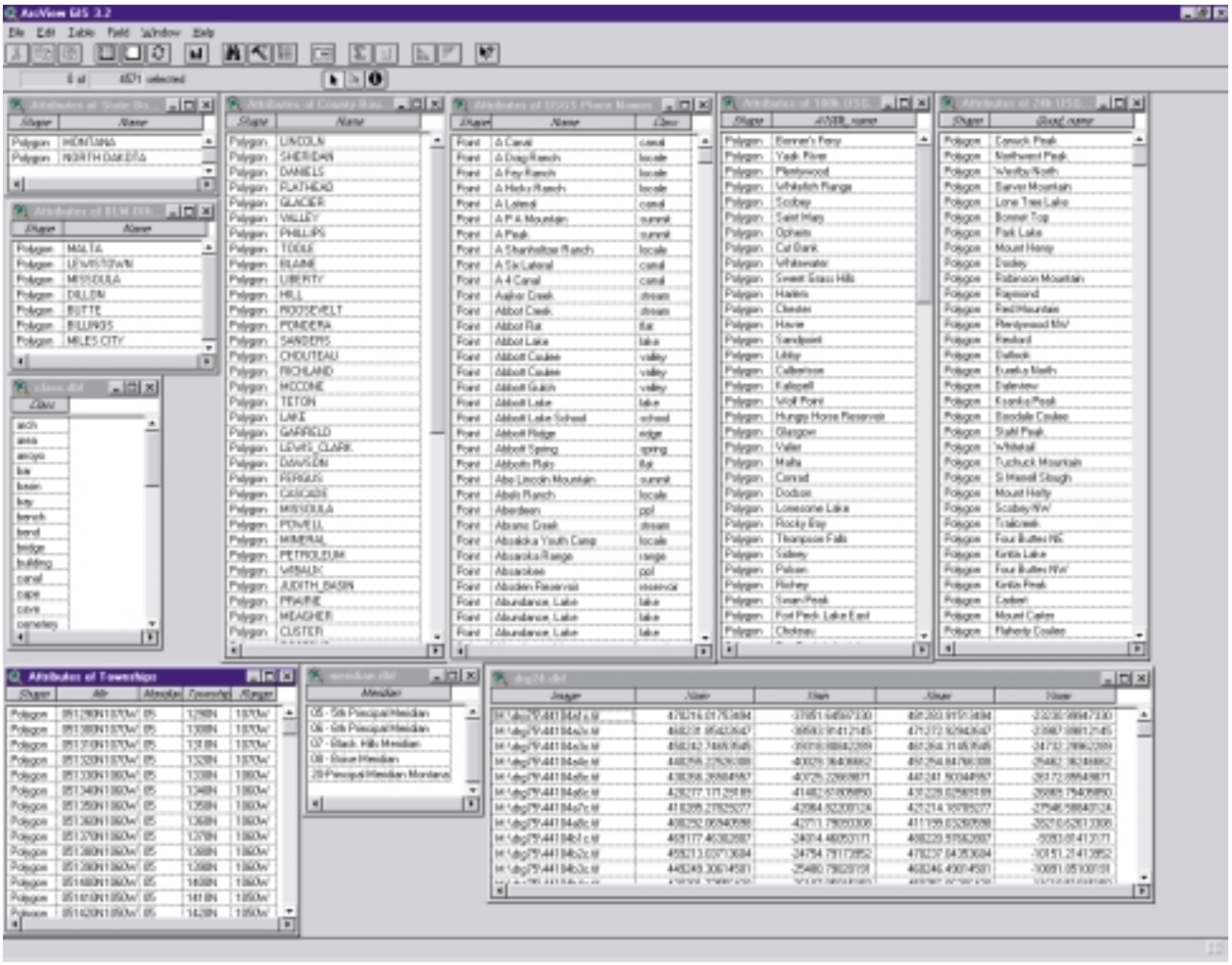
Each required theme has an .avl file by the same name (eg., bnd.avl, county.avl) located in the mapdem\avl directory. Each office may choose to change those .avls as needed.

Additional files that are used:

File Name	Location of File	Use
meridian.dbf (required)	mapdem\data\coverages	Meridian - Unique listing of Meridians used within data set
class.dbf (required)	mapdem\data\coverages	Class - Unique listing of Geonames place classifications
own100.shp	mapdem\data\coverages	Ownership shape file. Used by most users. Has an .avl file in the mapdem\avl directory.
Modlegend.odb (required)	mapdem\bin	Legend file to show Land Status (ownership) legend for 1:24000 and 1:100000 plot.
Modpgleg.odb (required)	mapdem\bin	Legend file to show Land Status legend for pagesize plot.
Drg24.dbf	mapdem\data\image	Image catalog for Drg data. Used by most users.
Doq24.dbf	mapdem\data\image	Image catalog for Doqq data.
Blmlogo.tif (required)	mapdem\data\symbols	Blm logo file to display on the map plot.
Greenball.gif (required)	mapdem\data\symbols	Dot image that is flashed to show the results of a search for a place.
Maps on Demand shortcut	Setup	Contains the icon and shortcut for the user to drag onto the Desktop image for starting up the application. Properties on the desktop should be checked for the path structures.

DATA SET TABLES

The following are examples of the required themes' tables as well as the additional tables used.



The geonames data can be retrieved from the USGS site and should contain the minimum data as well as additional attributes.

The index100 and index24 coverages may be created using the ArcInfo generate command or by using the index coverage associated with the 1:100000 or 1:24000 library, if used. The ArcInfo Generate commands are similar to the following:

Generate kgrid1
Fishnet nolabels
Origin Coordinate (e.g. -116.5,44)
Y-axis Coordinate (e.g. -116.5,46)
Cell Size (width,height) (eg., .125,.125 - the cell size for 1:24000 - 7.5 / 60 minutes)
Number of Rows, Columns (use 0)
Opposite Corner of Fishnet (e.g. -104,49.25)

Build kgrid1 polys
Densifyarc kgrid1 kgrid2 .01666666

(The coverage is created in Lat/Long. You will need to reproject it into the projection used within your own state if different.)

Project cover kgrid2 index (projection parameters used in your state)
Build index polys

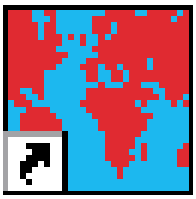
The twn coverage consists of township/range polygons without the section lines.

The ownership coverage is not a required theme but is needed by most users and should be stored in a convenient location to all users. The administrator of the Maps on Demand application should set up the .avl for all users, and then modify the legend files as shown below.

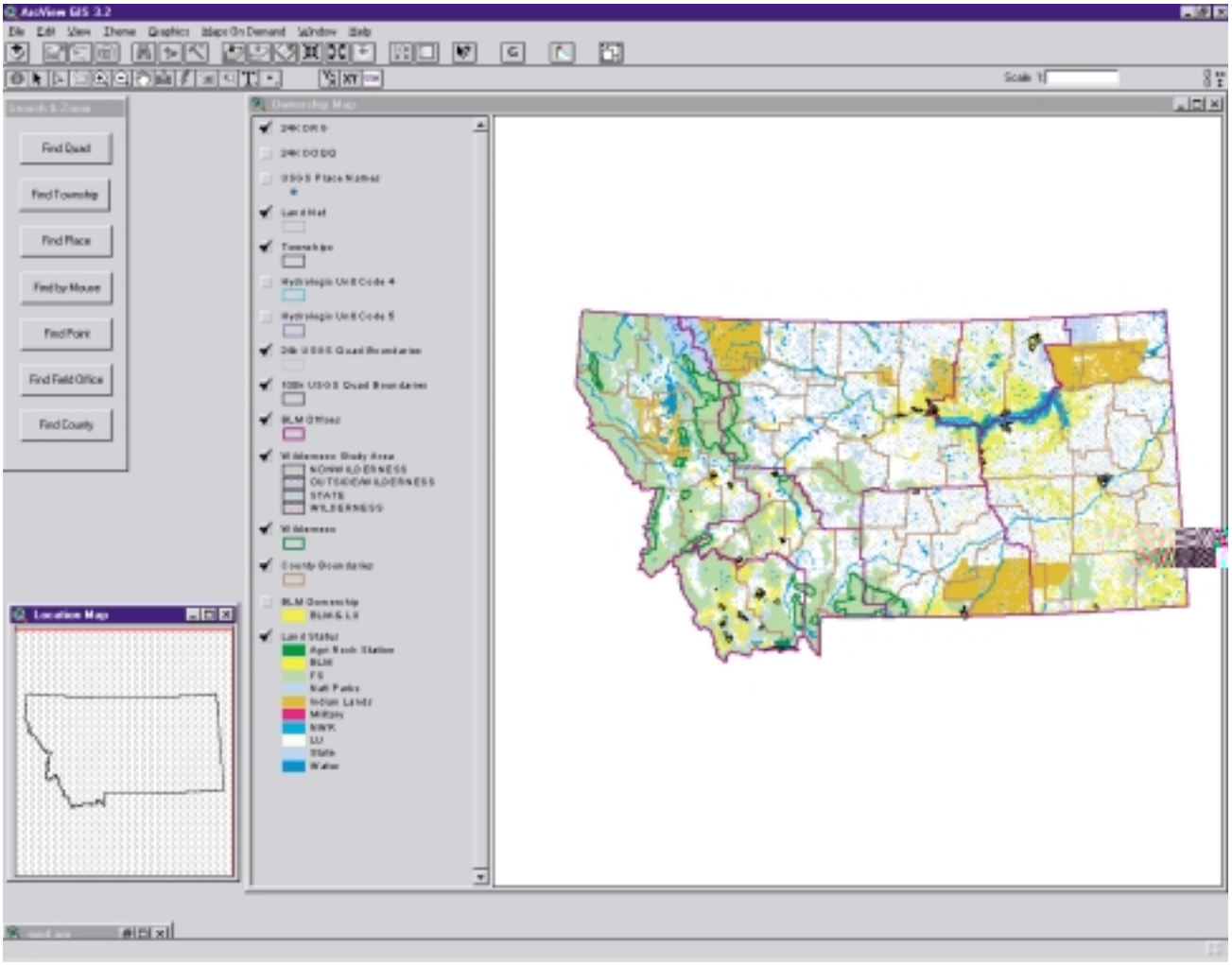
The Modlegend.odb and the Modpgleg.odb files are created using the Maps on Demand application. After clicking on the preview map option and denoting the map size, the menu choice on Mod_administration has the choice to write legend to file. This is to be used only by the administrator having write permissions to the mod directory structures. The colors on the legend can be changed using the standard ArcView commands. Once the colors have been changed to meet the criteria set by the users, the administrator must select the entire legend using the mouse and then write the legend to the file. The pagesize plot will write to the modpgleg.odb file and the 1:24000 and 1:100000 plots will write to the modlegend.odb file.

The Drg24.dbf and Doq24.dbf files contain the image catalogs for the Drgs and the Doqqs at the 1:24000 scale. It is recommended that when creating image catalogs, the filename contains the scale factor to better define for the user which set of data that they are using. These files may be created through the use of the MOD application. With the Ownership View active, click on the Maps on Demand menu option. Choose the Create Image Catalog option and enter the path to the directory which contains the Tiff images for the catalog. This process is timely especially with large data sets. The process searches the directory for all .tif files located within it, and using the list, displays each .tif file and returns its extent to add to the data within the .dbf table. If the directory location of the data is changed, it is possible to add the table to an ArcView session and modify the records by editing the table using the calculator. Once all of the data extents have been found and the records have been added to the temporary table, the user is asked to give the table a name and location. It is recommended that the table be located within the mapdem\data\coverages\image directory. This makes it accessible by all users using the network.

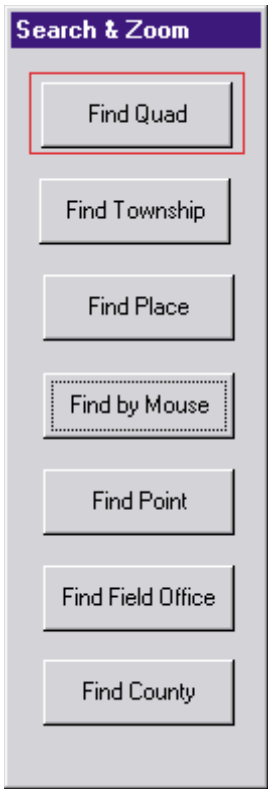
STARTING THE APPLICATION



Upon start-up of the application, the entire state will display. At this point you can search and zoom by pressing the "Find Quad", "Find Township", "Find Place", "Find by Mouse", "Find Field Office, or "Find County" button.



Find Quad

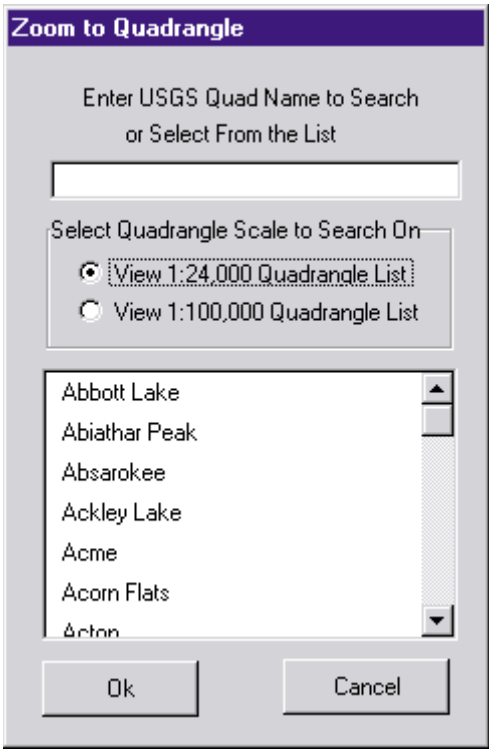


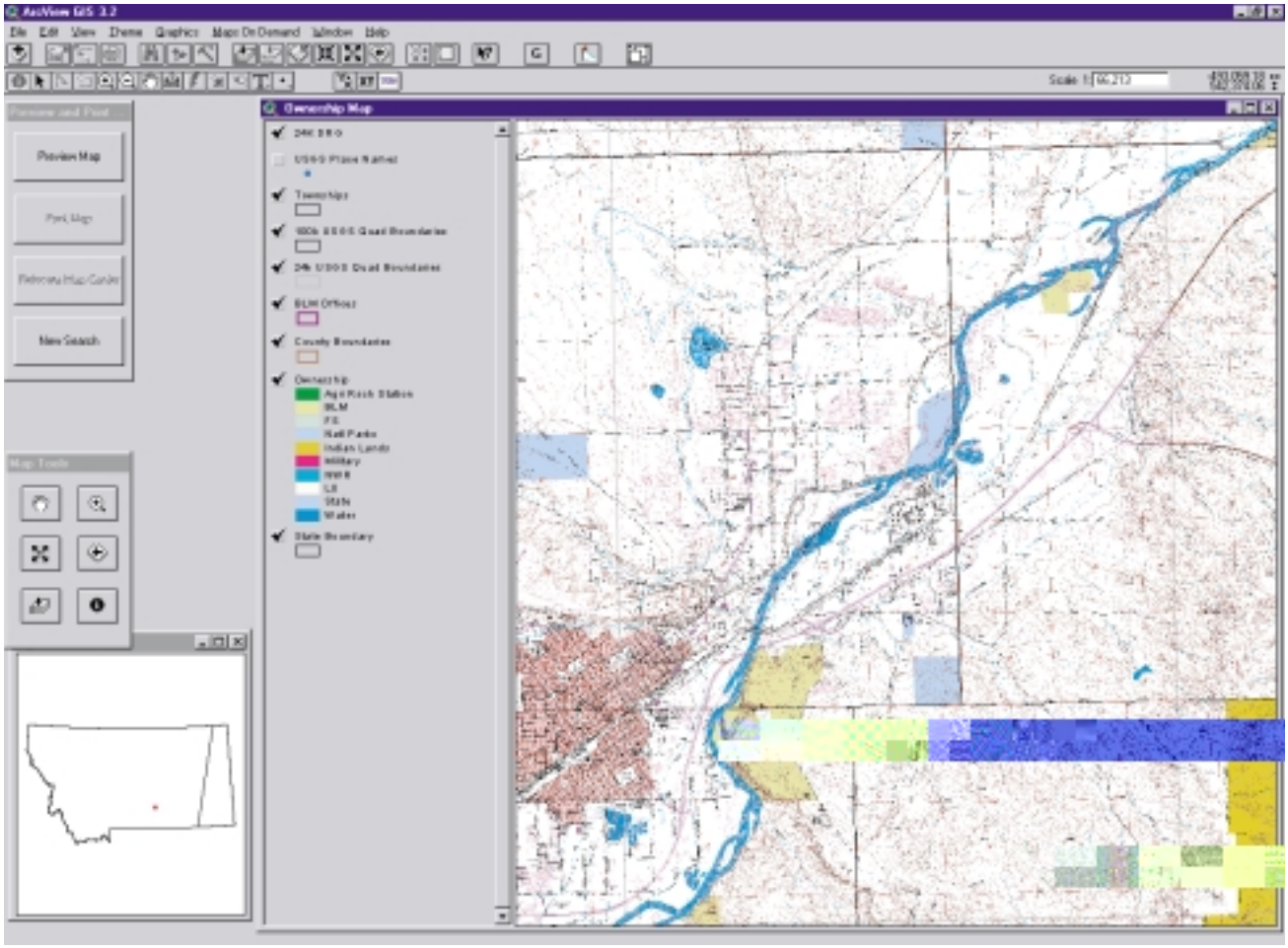
The "Find Quad" option allows search and zoom by either the USGS 7.5 minute quadrangle name or the USGS 1:100,000 map name. Type in the name or scroll from a pick list.

As you start to type the quadrangle name, the pick list will sort accordingly.

Once selected and the OK button is pushed, the screen will refresh with base information for that specific quadrangle.

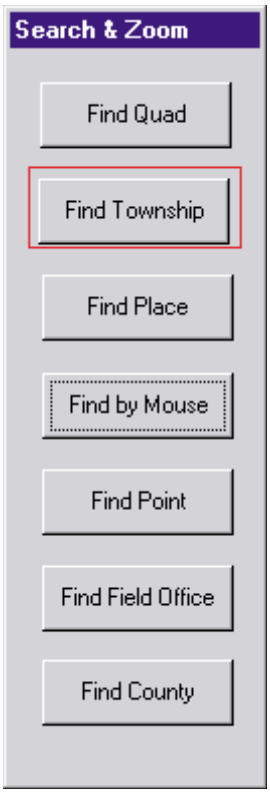
* At this point all, Arcview functions as well as those in the Map Tool pull down menu will work.





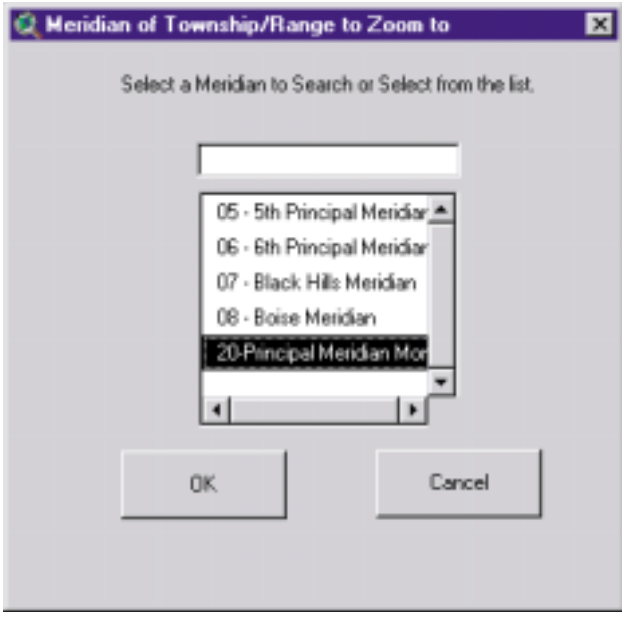
The data displayed depends on those coverages selected and the scale to which your view has been zoomed (DRGs are displayed once your selected view has reached a scale of 1:100,000.) 1:24,000 digital raster graphs are scans of USGS 1:24,000 paper quadrangles. The borders were stripped and reprojected to Albers NAD 27. Land Net is public land survey digitized by BLM from 1:24,000 USGS mylar quadrangles. 24K and 1:100,000 USGS quad boundaries were computer-generated. BLM offices and the counties are a subset to a statewide boundary layer. It was generated at the 1:100,000 scale. Wilderness Study Areas was digitized by BLM from original transcripts compiled at the 1;24,000 scale. Land status and BLM ownership are digitized at 1:100,000 scale. Hydrologic Unit Code (level 4 and 5) are from USGS.

Find Township



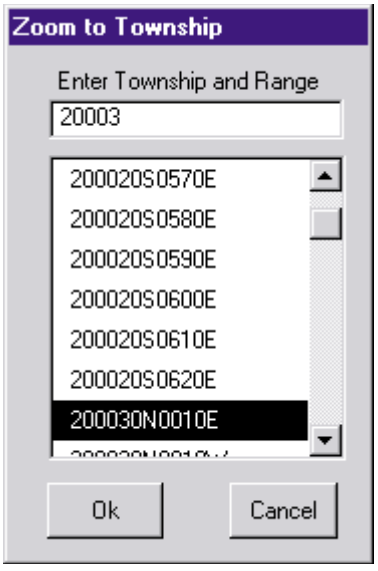
The "Find Township" option allows search by townships.

In order for the correct township to be found, you must enter the correct meridian code.

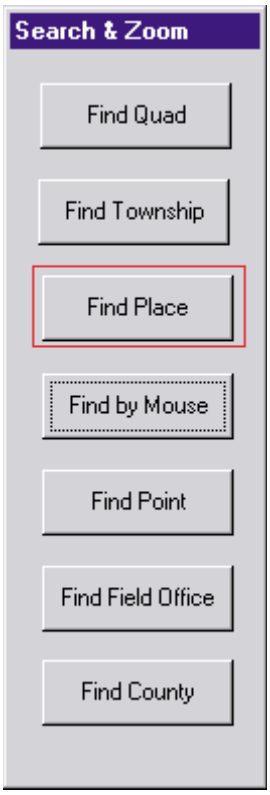


The Township/Range can either be typed in or the scroll list can be used. Township/Range is in ALMRS format.
ALMRS format is a 2-character meridian code followed by the township and range (each 5 characters). Township/Range format is 3 characters for the township/range number (zero fill unused spaces). The 4th character is:

0 for full township/range
1 for 1/4 township/range
2 for 1/2 township/range
3 for 3/4 township/range



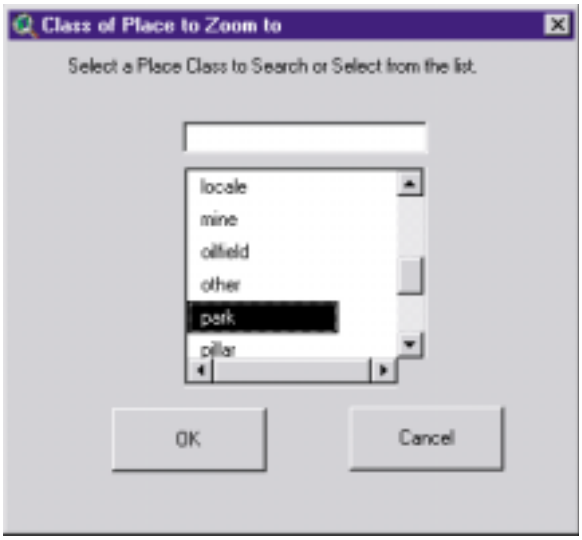
Find Place

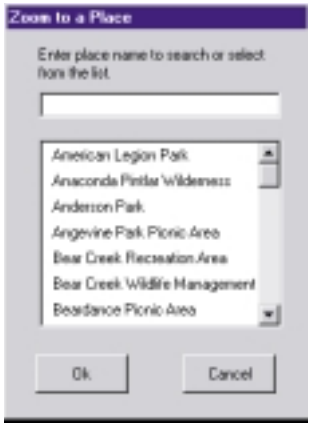


The "Find Place" option allows search by USGS geographic categories.

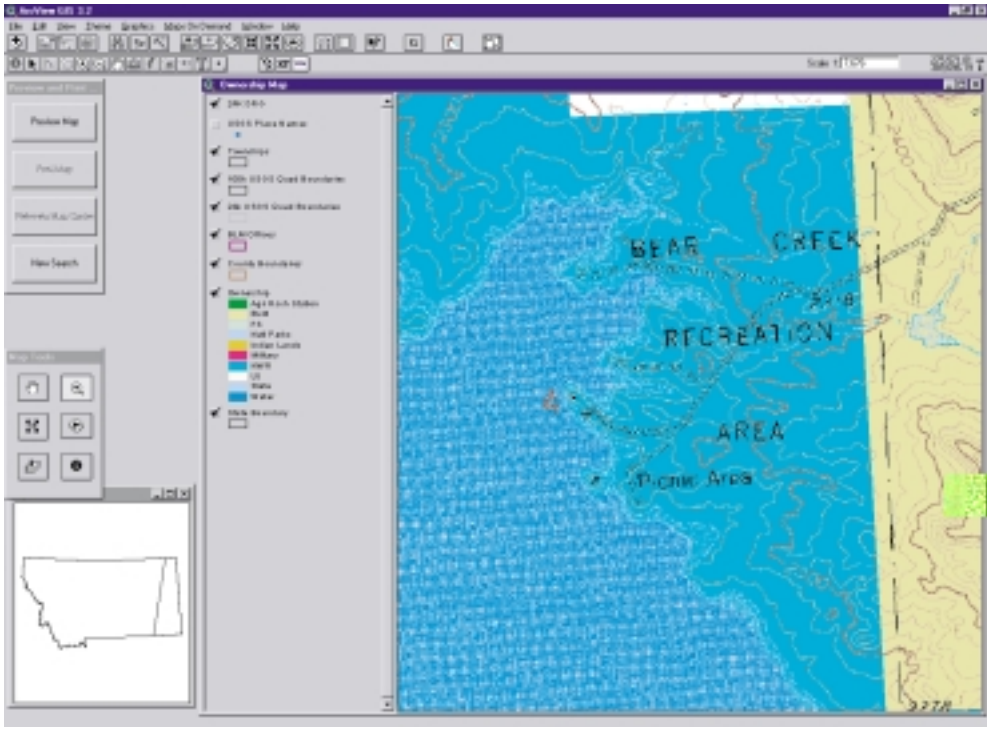
As you start to type the category, the pick list will sort according.

The USGS geographic categories can be typed in or selected through the scroll list.

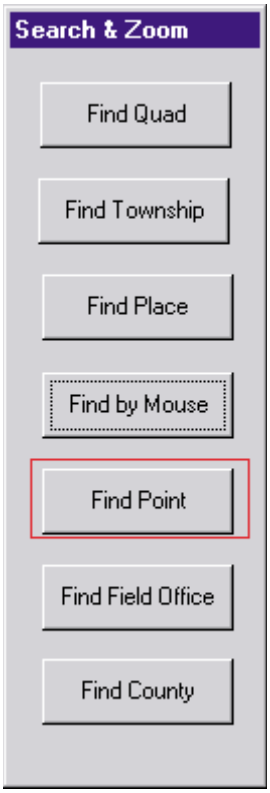




Type in the name of the feature being searched for, or use the scroll list to pick.



Find Point



The "Find Point" option allows search by coordinate referencing.

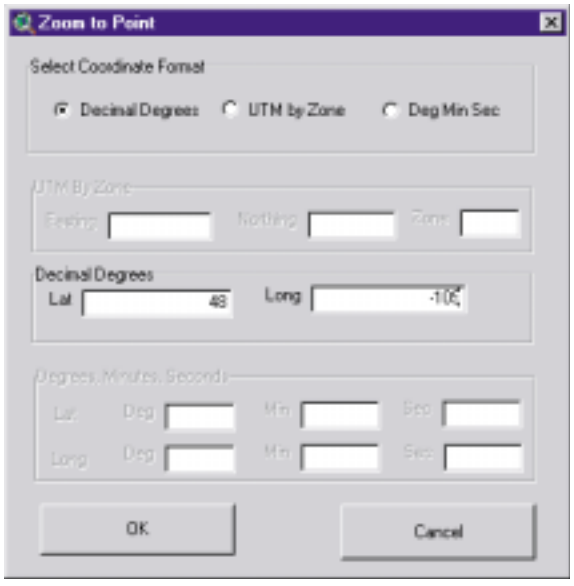
A coordinate format of either Decimal Degrees, UTM by Zone, or Deg Min Sec must be selected.

If Decimal Degree is chosen then input:
Latitude and Longitude
(longitude is negative in MT)

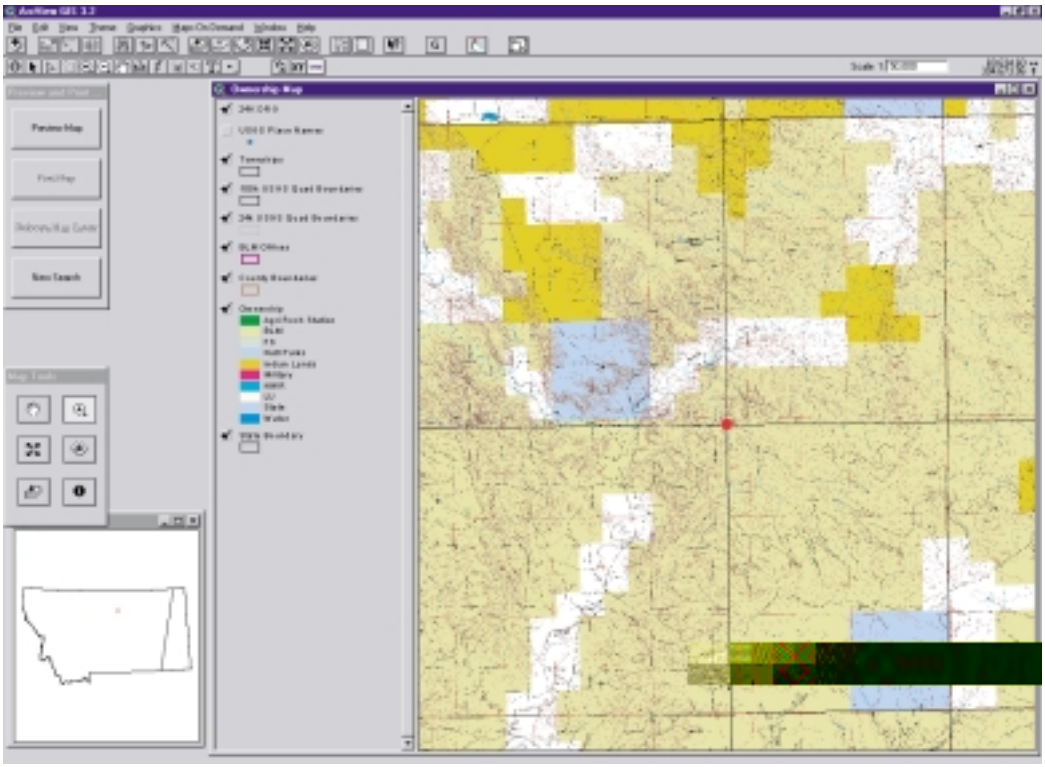
If UTM is chosen then input:
Easting, Northing, and Zone

If Degree Minutes Seconds is chosen then input:
Latititude Degree, Minutes, Seconds, Longitude Degree (negative), Minute, Second

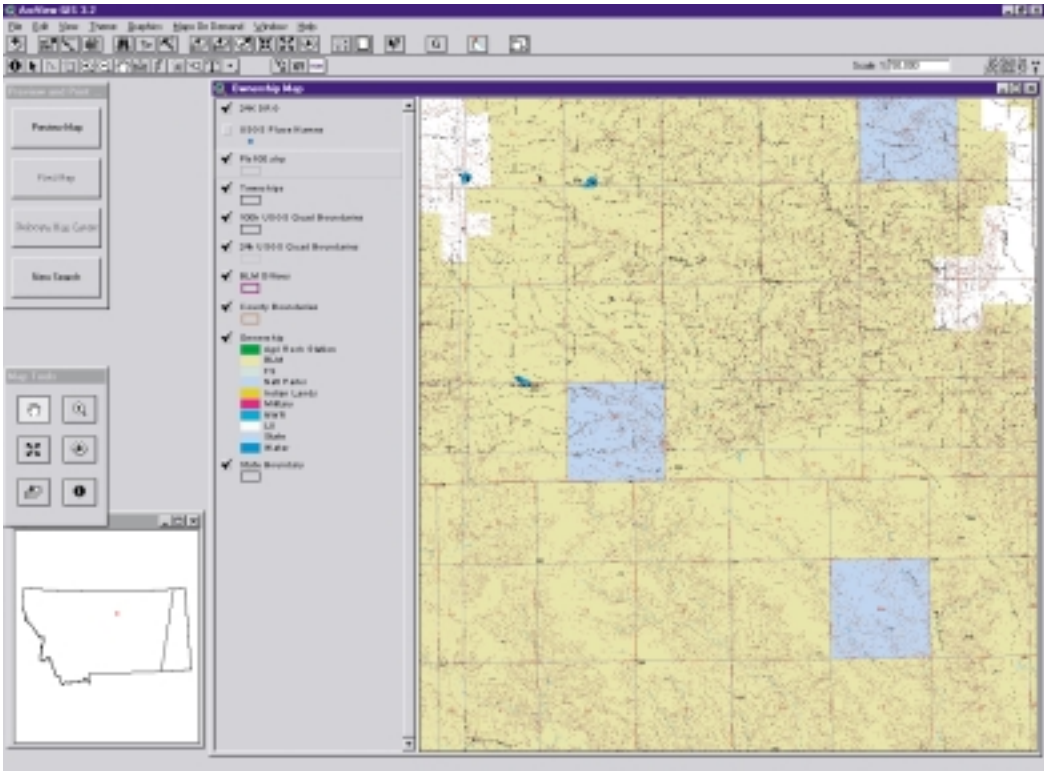
The "Find Point" option will allow you to reselect by criteria entered.



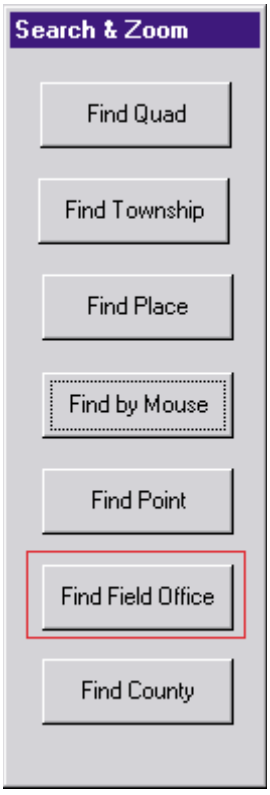
Your view is windowed to the surrounding area with a red dot representing the area specified (see next page).



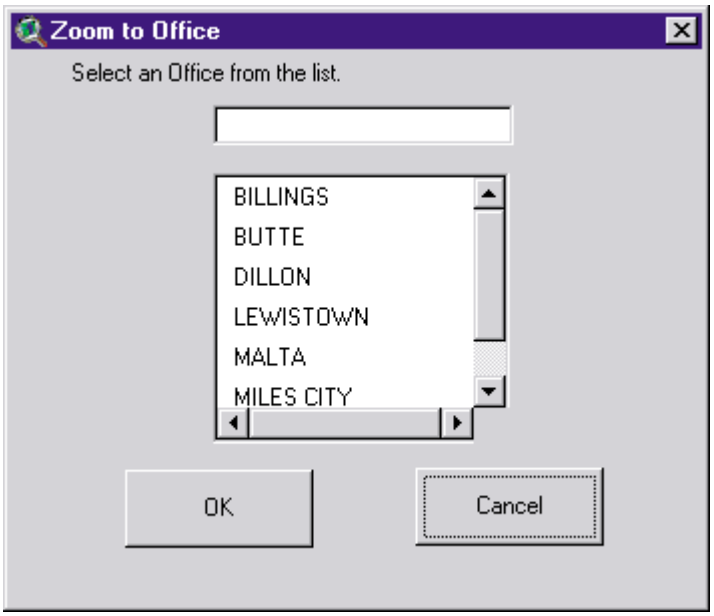
As with the other Search and Zoom functions, once the selection criteria has been filled (i.e., for a township query), the selected area will be displayed. At this point all Arcview functions are available for use (i.e., additional themes can be added to your view). Or you may choose to prepare a map or start a new search.

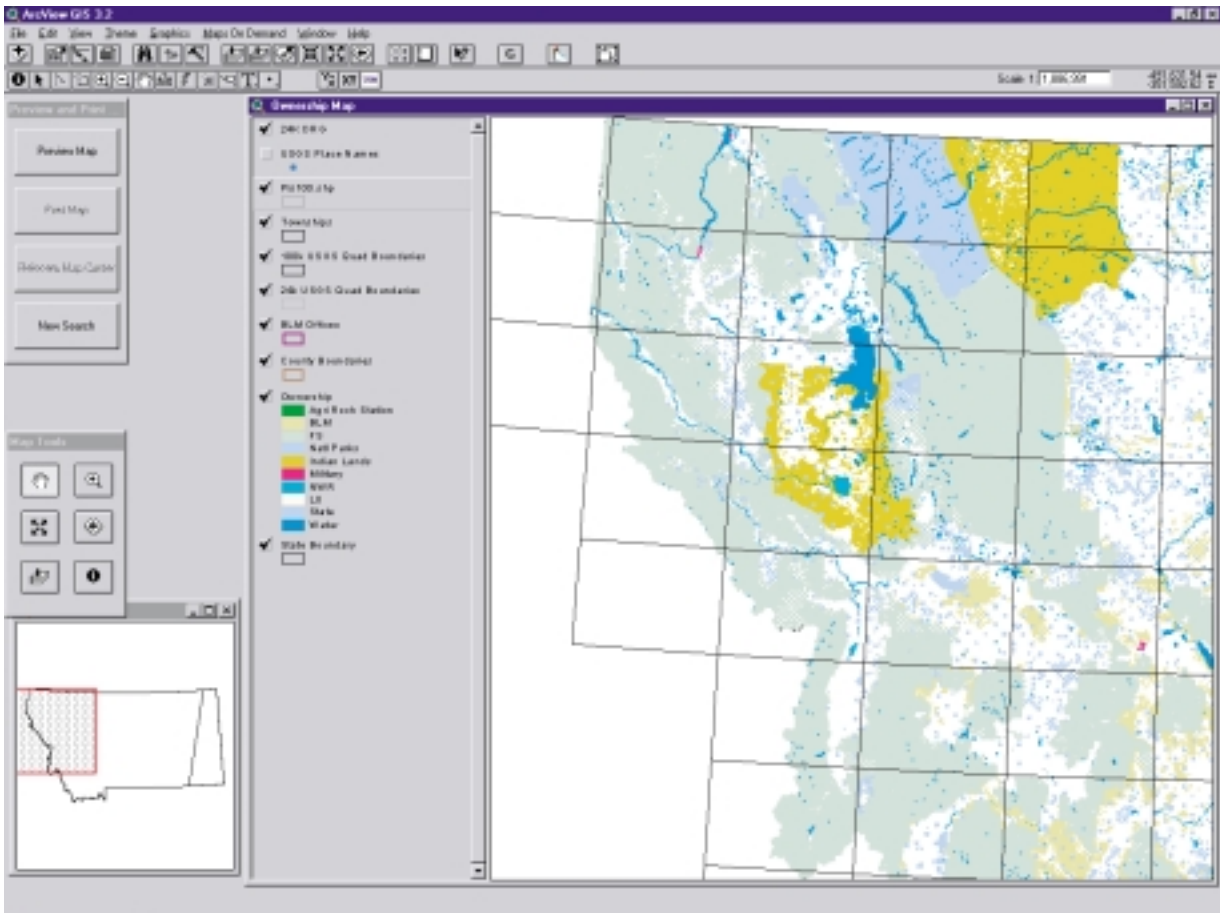


Find Field Office

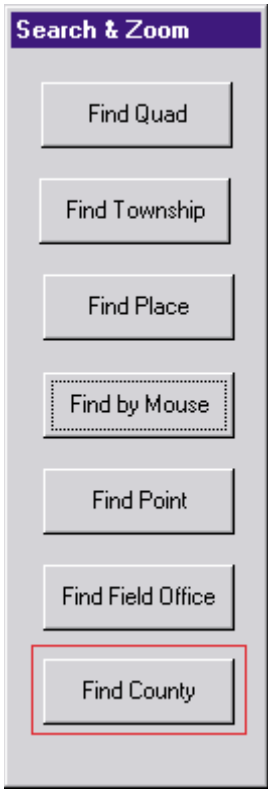


The "Find Field Office" option will allow you to zoom into the selected BLM office area by either typing in or scrolling and selecting from list.





Find County



The "Find County" option is used to reselect by county name. The view will be displayed according to the county specified by either typing in or selecting from scroll list.